Letter to the Editors

Bicknell's Thrush Identification

After reading Henri Ouellet's article *Bicknell's Thrush in Ontario (Ontario Birds* 11: 41-45), I looked at specimens of *bicknelli* in the collection of the Academy of Natural Sciences. The Academy has thirteen specimens, all collected during the breeding season. While all distinguishing characteristics mentioned are readily apparent when comparing birds in the hand, it seems to me that none would be reliably useful in the field.

Aside from size, the most reliable feature of the birds I looked at was the colour of the back and tail. However, some *minimus* specimens were just as brown as *bicknelli.* Other features, such as throat colour, were variable in both *bicknelli* and *minimus,* with a fair degree of overlap.

I find the illustration in the National Geographic Society's *Field Guide to the Birds of North America* particularly misleading in that it shows extreme examples of plumages for both *minimus* and *bicknelli,* without describing the full extent of variation in either race.

Dr. Ouellet mentions, but does not emphasize, the difficulty in identifying this species in the field. Until more is known about *bicknelli,* the identification of individual birds in Ontario (or outside the breeding range) is probably best confirmed by measurements, or by direct comparison with birds in the hand. In short, *bicknelli* should not be identified in the field unless it is singing.

I thank Dr. Ross D. James for his comments on birds in the collection of the Royal Ontario Museum.

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Articles

Observations on the Nesting Habits of Red-shouldered Hawks in York Region

by
Peter Dent

Introduction

The nesting habits of Red-shouldered Hawks (*Buteo lineatus*) were studied on a casual basis in York Region in the vicinity of the Oak Ridges Moraine. This report embraces the observations of 46 nests used by what were judged to be 20 different pairs over the last 14 years. It describes the habitat, annual nesting cycle, productivity and ecology of this colourful hawk, now considered "rare" in Ontario (Austen et al. 1994).

Habitat Selection

Nests studied were typically in mature, predominantly deciduous, mixed woodlands. Most often maple, specifically Sugar Maple (*Acer saccharum*), was the dominant species in nesting woods with any one or combination of American Beech (*Fagus grandifolia*), Red Oak (*Quercus rubra*), White Birch (*Betula papyrifera*) and Eastern Hemlock (*Tsuga canadensis*) comprising the balance. Other woodland types used are noted in Figure 1.

The Red-shouldered Hawk is known to favour riparian woodlands (Bent 1937, Sharp and Campbell 1982, Szuba and Norman 1989), and most nest sites in this study support this preferred habitat (see Figure 1). The average distance from water was 272.4 m, and nearly 72% of all nests were closer to a waterbody than this mean. Proximity to ponds, in particular, appears to be of importance. Eighteen nests were in stream or pond valleys, with the "knob-and-basin" topography of the Oak Ridges Moraine study area, and the tendency for such terrain to escape clearing and development, contributing to this number.

The favoured tree for nesting was American Beech, with almost half (45.7%) of the nests occurring in this species. Figure 1 lists all the species used. No nests were found in conifers in this study although other sources have indicated that Red-shouldered Hawks will occasionally select conifers (Szuba and Norman 1989). To further support this, my colleague Tim Dyson (pers. comm.) observed a nest in the crown of a spruce (*Picea* sp.) in a soft maple swamp, and (perhaps the most atypical) a pair was reported nesting in a Scotch Pine (*Pinus sylvestris*) plantation (T. Dyson and K. Szuba, pers. comm.). All trees chosen in this study were alive with one exception, a dead poplar (*Populus* sp.) in which the birds used an old squirrel drey (nest). A large beech, used as a nesting site, died this year.

Spring arrival and nest building

Early to mid March is the usual time of arrival of Red-shouldered Hawks on their nesting territories; my records span from 28 February to 24 March. In an active territory, the nest to be used, if it is an old nest of usable size, usually has a layer of new twigs and green sprays 9 to 12 cm thick atop the old structure. A new nest is often very colourful, being laced with greenery throughout with the top, as with old nests, carpeted in sprays. In a territory with more than one nest, unused nests may be left untouched or may be well covered with green decoration and have some nest-building twigs as well. Any state within these two extremes can be encountered. Eastern Hemlock is the species of choice for nest adornment while White Pine (*Pinus strobus*), Eastern White Cedar (*Thuja occidentalis*), Scotch Pine, spruce and deciduous sprays are used less often. Broadleaf decoration becomes more prevalent as such species start to leaf out.

On the nest top, the bowl containing the eggs averaged approximately 20 cm across by 9.5 cm deep; this is lined with a variety of materials, hemlock sprays and strips or shreds of inner bark being most commonly used. Other materials include down, chunks of outer bark, other green sprays, grass and straw.

Figure 1: Habitat and site parameters of Red-shouldered Hawk nests in York Region.

Pair	Nest No.	Nest Tree	Height (m)	Woodland Composition	Distance from water (m)	Waterbody
	1	White Birch	7.0		265	
	2	Beech	8.8		260	
	3	Beech	6.7	Maple, Beech,	250	stream
A	4	Beech	6.4	and Hemlock	260	and
	5	Beech	8.5		290	ponds
	6	Sugar Maple	15.2		270	
	7	Beech	7.6		300	
	1	Beech	11.9	Maple, Beech, Hemlock	30	
B	2	Red Oak	12.2	predominantly, Red Oak	185	stream and
	3	Red Oak	9.5	predominantly, Red Oak	335	pond
	4	White Birch	10.6	Hemlock, Maple, Birch	30	
	1	White Birch	13.7	Red Oak, Beech, Birch	440	stream
C	2	dead Poplar	14.3	Birch, Maple, Oak, Poplar	200	pond
	3	Red Maple	15.5	Maple, Beech, Hemlock	70	stream
	4	Red Oak	12.2	Red Oak, Beech, Birch	540	stream
	1	Red Oak	15.5		730	
D	2	Red Oak	9.5	Maple, Red Oak	640	stream and
	3	Red Oak	13.4	and Hemlock	725	ponds
	4	Red Oak	16.2		460	
	1	Beech	9.7		75	
E	2	Sugar Maple	11.6	Maple, Beech, Hemlock	60	pond
	3	Sugar Maple	12.2		45	
	1	Beech	11.6		500	stream
F	2	Beech	11.6	Maple, Beech, White Birch	500	and
	3	Sugar Maple	12.8		160	pond
	1	Beech	9.7		1300	
G	2	Sugar Maple	14.6	Maple, Beech	1200	stream
	3	White Ash	14.0		1000	
	1	Beech	13.1		90	pond
H	2	Beech	7.0	Maple, Beech, Hemlock	25	pond
	3	Beech	15.9		65	stream
I	1	Beech	9.5	Maple, Hemlock	90	stream and
	2	Sugar Maple	13.7		60	ponds
J	1	Beech	11.6	Maple, Beech, Hemlock	115	stream and
	2	Beech	10.6		20	pond
K	1	Beech	16.2	Maple, Beech, Hemlock	160	permanent
	2	Beech	14.0		60	pools
L	1	Sugar Maple	19.5	Maple, Hemlock	35	stream
M	1	Sugar Maple	15.2	predominantly Maple	125	pools
N	1	Red Maple	9.1	Maple, Birch, Hemlock	62	swamp
O	1	White Birch	15.8	Maple, Hemlock, Birch	25	ponds
P	1	White Birch	16.2	Maple, Beech, Oak, Birch	195	pond
Q	1	Beech	11.	Maple, Beech, Hemlock	85	pond
R	1	Sugar Maple	15.2	Maple, Beech, Hemlock	90	stream
S	1	Beech	?	Maple, Beech, Hemlock	55	pond
T	1	Beech	15.2	Maple, Hemlock, Beech	55	stream

The types of nest bowl lining and decoration varied with location, with pairs simply using whatever was close by. One rather unique example of this was a pair nesting 90 m from a farm from which the birds gathered a substantial amount of straw, a piece of sod, a length of baling twine and chunks of winter clothing insulation to line their nest.

The nest itself normally occupied the largest fork of the tree trunk, ranging from below to within the lower canopy. Nest heights varied from 6.4 m to 19.5 m with the average being 12.25 m (see Figure 1). Measured nests averaged 38 cm in depth, with mean perpendicularly measured surface diameters of 61 by 46 cm, although a number of nests strayed considerably from these dimensions. The copious amount of green sprays applied to nests fills in between the sticks and twigs so that older, regularly used nests have a humus base. One old nest about 12 m up in a beech tree had an elderberry (*Sambucus* sp.) sprouting from its base.

Red-shouldered Hawk pairs and nesting territories are known for their longevity (Bent 1937). The longest continuously occupied territory under study here was 19 years (T. Dyson, pers. comm.), the original nest still regularly used. This same territory contributed to a maximum density of five different Red-shouldered Hawk pairs' nests within 1.55 square kilometres. This group of active nests occurred in an area of extensive woodlands with multiple watercourses.

Egg laying and incubation

The average clutch size of pairs studied was 3.2, with 3 clutches of 2 eggs, 10 clutches of 3, and 7 clutches of 4. The sub-elliptical eggs typically had a background colour of white, very faintly tinted with greenish-blue. This latter, more colourful hue was more evident in freshly laid eggs, with eggs close to hatching being dirty white, stained from nest lining materials. The markings on the eggs consisted of flecks, blotches, smears and washes all overlaid, which also became somewhat obscured through incubation by nest staining. Markings were most often browns or beiges often tinted with green; red, purple or yellow and could be more or less evenly distributed over the egg but were more often concentrated at either end. These concentrations came in the form of a wreath about one end, a solid cap of colour, or simply an increased density of markings (see Figure 2).

Thirty-two eggs were measured from 11 clutches and the average size was 43.5 by 55.8 mm with the four extreme measurements underlined in the following eggs: 41.4 by 51.7, 44 by 59.5, and 45 by 54.8 mm. Bent (1937) recorded an average egg size of 43.9 by 54.7 mm, a marginal difference compared to this study's findings.

Incubation normally commenced in early to mid April, my dates spanning from 1 April (possibly the end of March) to 21 April.

Chick development and fledging

The time of hatching observed for Red-shouldered Hawk eggs spanned from 13 May to 30 May, and assumed hatching dates from nests with young also indicated mid to late May as the time of hatching. The hatching interval between eggs

Figure 2: A representative clutch, showing distribution of markings.

studied was approximately 2 to 2 1/2 days.

A young hawk's first down is greyish buff above and white below; talons are pale grey, turning black by around eleven days. By two weeks the down is changing to all grey except for a white spot on the back of the head, white leggings and ventral pelvic area. The small white egg tooth is lost at about two weeks. Feathers begin to break out of their sheaths at around 2 1/2 weeks on the remiges. At three weeks (see Figure 3) the down is more definitely grey with white only on the back of the head and leggings; and the remiges are all feathering as are half of the scapulars and a few of the upper wing coverts. The tail feathers are still in sheaths which protrude about 2 cm from the skin, but are visible only about half that length with the down coat. It is at around this time that the nestlings begin to act aggressively towards intruders by sitting upright with spread wings and gaping mouth. By four weeks all feathering appears to have at least started and the nestlings fledge at 5 1/2 to 6 weeks. After fledging, the young may fly about the nesting territory screaming incessantly and, in this way, can easily betray the location of a successful nesting territory. Fledging happens from late June to early July with my records spanning 21 June to 12 July.

My findings show that all duties at the nest itself are predominantly the female's. This includes incubating, brooding and feeding of the young, and post-hatching

decorating (no observations for pre-hatching nest decorating). As the nestlings mature the female's attentiveness and presence at the nest wanes, particularly when the young are around three weeks of age. This allows the male to visit the nest more often, but he is still the less present parent, with the female often perched near the nest while he is away hunting. During the nestling period, food exchanges from male to female were observed either at the nest or away from the nest after the male calls to the female. On one occasion there was food, a dead Meadow Vole (*Microtus pennsylvanicus*), on one pair's unused alternate nest. Exchanges at the nest may involve the female behaving agonistically toward her mate; I have seen one female mantle over the food, squeal and position herself between the male and the young until he left.

All observations of prey items indicate that these hawks have varied diets. Small mammals (mostly voles, with fewer shrews and moles) are most popular, with small to medium sized songbirds, frogs, toads and snakes as regular fare. A trout (*Salmo* sp.) was once observed on a nest.

Productivity and mortality

Of 52 observed nesting attempts, the outcome is known for 41. Of these, 24 (58.5%) ended with fledged young. The average number of young fledged per effort was 1.12, while from successful nestings only, this average jumps to an even 2.0. Figure 4 illustrates the productivity and mortality findings from this study. Due to the casual nature of my observations, the numerous types and instances of nesting failure represent only what was observed, and thus may not be completely representative. With such numerous records of failure, it must be noted that slightly over half of these (23 of 42 instances) were of partial and not complete effect; one addled egg in a clutch of 3, for example. The following reasons resulted in complete failure of a nesting attempt: nest prepared but eggs not laid, desertion, predation and unknown. Some explanations of each type of nesting failure follow.

The four records of failure to lay eggs is likely a higher figure than what actually happened since the active nest may not have been found. I believe this does happen occasionally though, since one year an old nest was found with plentiful new build-on, decoration and a lined bowl ready for eggs; the effort ended there. This nest was very well prepared, much unlike an alternate nest. A subsequent extensive search yielded no other nest.

In the two cases of desertion, one followed an inattentive incubation, with three abandoned eggs found on an ageing nest in a cool summer rain storm. The second had two cold eggs only a few days from hatching on a nest built over by squirrels. Sharp and Campbell (1982) witnessed Gray Squirrels (*Sciurus carolinensis*) harassing Red-shouldered Hawks at a nest, so squirrels may have been to blame for this second abandonment, although the eggs were unharmed.

Addled eggs normally sink into a nest and get mostly buried during the nestling period.

I have only once seen a nestling Red-shouldered Hawk die through sibling aggression. One young was repeatedly attacked about the face by

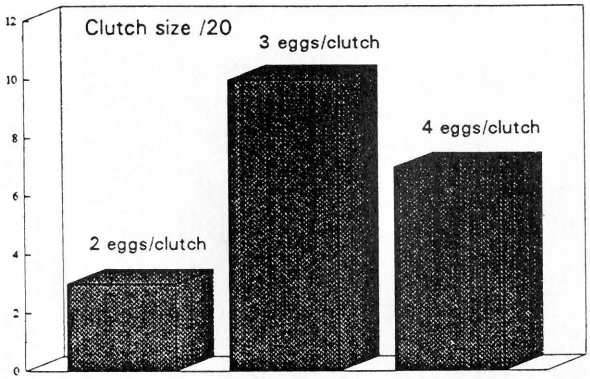
siblings in a brood of four. This young suffered a slow death and soon thereafter disappeared.

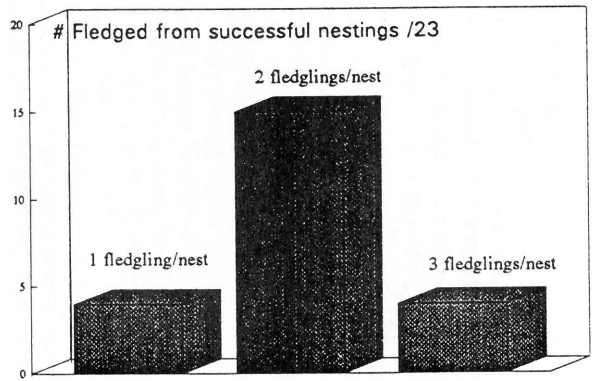
On six occasions I have found young dead on the ground beneath the nest. These young were always well feathered, at least four weeks old. The high number of young dying and eggs or young disappearing (shown in Figure 4) may be due to reasons previously mentioned; however, unknown forces could be at play, and this is a reason for continued study.

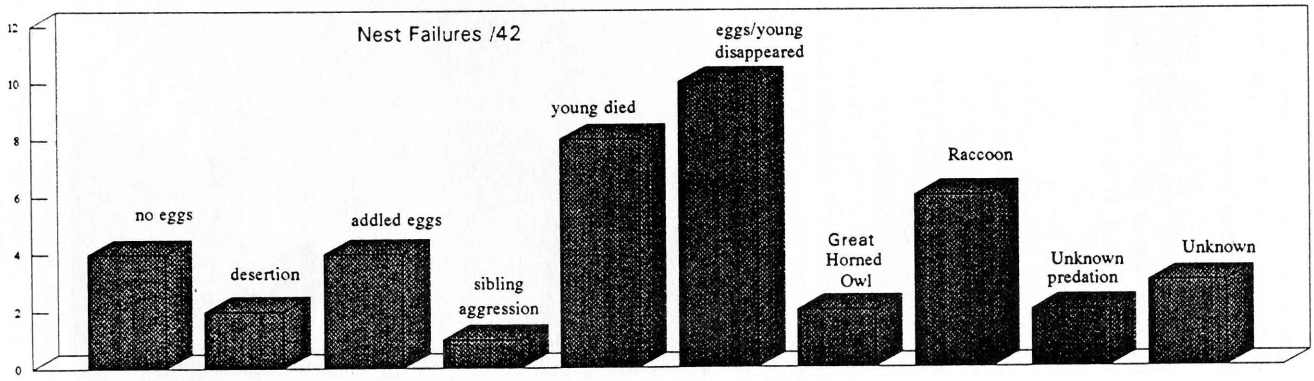
Presumed predation by Raccoons (*Procyon lotor*) or Great Horned Owls (*Bubo virginianus*) normally happened early in the nesting cycle, before eggs hatched. Raccoons were apparently more of a problem with easier-to-climb trees such as thinner-trunked maples and oaks. Craighead and Craighead (1956) expound on the impact that Great Horned Owls have on other nesting raptors; the earlier nesting and aggressive nature of this owl often jeopardizes another species' nesting attempt. With Red-shouldered Hawks, this trend holds true. One extremely reliable pair of hawks was observed not nesting for two years while Great Horned Owls occupied one of their nests. Before this intrusion, the hawks nested there for at least eight years and they have nested there for four years following. Only once did events reverse; one early visit to another Red-shouldered Hawk nest revealed a Great Horned Owl atop old squirrel build-on. Later

Figure 3: A brood of young Red-shouldered Hawks averaging about three weeks of age. The 2 and 2 1/2 day hatching interval indicated in this study is clearly shown in the staggered feathering of this brood.

Figure 4: Productivity and mortality findings of nesting Red-shouldered Hawks in York Region.







that spring, a clutch of four Red-shouldered Hawk eggs sat in a nest built over the owl eggs. Possible owl mortality may have played a role in this instance, though. This example is an exception to the usual trend of the Great Horned Owl being the "bully" of the raptor group. In addition, my colleague Tim Dyson (pers. comm.) cites numerous instances of this owl killing Broad-winged Hawks (*Buteo platypterus*).

The three records of unknown causes for failure were of complete effect and may well have been some sort of predation, but observations are inconclusive.

Human interference and crows (*Corvus brachyrhynchos*) were not observed to cause any direct nesting failure, although one effort suggested crow predation. Proximity to humans did not appear to sway productivity in any way. Three quarters of all territories contained houses and no single nest was farther than 245 m from a human presence, either a house, road or trail. Some nests were virtually in people's backyards. Two nests were only 40 m from the house and, despite this, fledged young. One of these nests was also only 30 m from a successful Raccoon den.

In 1992, exceptionally cool, wet weather may have been to blame for the single most disastrous year for these hawks in terms of productivity. Only one out of five nests studied fledged young.

Myiasis was not uncommon in broods of Red-shouldered Hawks. Maggots were seen in the ears of almost half the young closely observed. Bent (1937) elaborates on the destructive power of this condition, stating that two young hawks skinned at three weeks of age had their eardrums totally destroyed by such maggots. The potential for this infestation to result in nestling or post-nestling handicapping or mortality could indeed be significant.

Pairs showed a tendency to be fairly consistent in terms of productive success or failure. Over the study period I came to grade pairs from good to poor on merit of their reproductivity. Some pairs consistently fledged young while others rarely succeeded in getting through incubation. The reason for such a trend could be the quality of each territory, the competence of individual birds, human disturbance or predators. I believe these could all be to blame, but with known replacement of breeding adults not altering a territory's productivity, the option of competence of birds is weakened. Such a trend appears to be territory-specific and is another reason for continued study.

Acknowledgements

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Cliff Hope at Attawapiskat Lake in 1939

by
Ross D. James

The following article was prepared largely from information gleaned from the field notes of Cliff Hope (Journal numbers 12 and 13) in the archives of the Royal Ontario Museum. Hope's experience there would have provided additional insights. However, I think sufficient detail was preserved to provide a good idea of what he encountered at Attawapiskat Lake.

Hope left Toronto on 2 June 1939 with L.A. Prince and W.B. Scott, travelling by train to Sioux Lookout. From there they flew with Canadian Airways to Lansdowne House on Attawapiskat Lake on 4 June. They were met by the Hudson Bay Factor, a Mr. Bastow, who had arranged accommodation in a Revillon Freres Trading Company House, now owned by the Hudson Bay Company. The party remained at Lansdowne House until 25 August.

Lansdowne House (52°14'N, 87°53'W) lies on the end of a narrow peninsula on the south side of Attawapiskat Lake in the midst of the Boreal Forest in the central part of northern Ontario (Figure 1). The physical location of the town meant that his ability to move about was very restricted. Walking, he could go only south along the narrow peninsula. The party had a canoe, but windy weather restricted travel on such a large lake on many days. The difficulty is perhaps exemplified by their landing on the lake, in what he describes as a "50 to 60 mile/hour" wind (80 to 100 km/h), when "the first *touch* on the water bounced the